Metastatic Renal Cell Carcinoma in a Hemodialysis Patient with Acquired Renal Cystic Disease

J.		Almirall ^a
C.		Mallofre ^b
J.M.		Campistol ^a
J.		Montoliu ^a
T.		Ribalta ^b
L.		Revert ^a

^aNephrology and ^bPathology Services, Hospital Clinic, University of Barcelona, Spain

Dr. J. Almirall, Nephrology Service, Hospital Clinic, 170 Villaroel, E-08036 Barcelona (Spain)

Dear Sir,

Acquired renal cystic disease (ARCD) develops in a substantial number of patients with advanced chronic renal failure. ARCD has been associated with the development of hemorrhagic complications and/or renal tumors. The exact incidence of renal tumors in ARCD is not well known but could be around 14%. However, the malignant potential of these neoplasms is said to be low, and very few cases of metastatic disease have been described [1–5]. The size of the tumor has been considered an important prognostic factor since tumors less than 3 cm in diameter rarely metastasize [6], and to our knowledge no tumor this small associated with ARCD has been demonstrated to produce metastasis. We report a hemodialysis patient with ARCD who died of metastatic disease from a 2-cm renal cell carcinoma.

A 58-year-old male with terminal chronic renal failure of uncertain etiology had been on hemodialysis for 4 years. Prior to entering the chronic hemodialysis program there was no evidence of renal cystic disease and an abdominal ultrasound examination had shown bilaterally shrunken kidneys without cysts. He was admitted to hospital with a 4-week history of poor general condition, coughing and dyspnea. Physical examination revealed a right pleural effusion and a 7-cm hepatomegaly. A pleural tap yielded a hemorrhagic exudate where mesothelial cells with some immature nuclei were seen. A pleural biopsy showed minimal fibrotic changes without evidence of neoplastic disease and fiberoptic bronchoscopy was normal. Pleuroscopy showed a suspicious whitish area in the apical region of the right parietal pleura. Histologic examination of material obtained from this area revealed epithelial malignant cells, the origin of which could not be determined. A liver biopsy disclosed macronodular liver cirrhosis and a small silicon-containing granuloma. An abdominal ultrasound and CT scan examination showed hepatomegaly without metastatic images, and bilaterally small kidneys with some cysts.

Fig. 1. a Liver with multiple metastatic nodules, b Atrophic kidney with acquired renal cystic disease and a 20-mm solid mass in the lower pole (renal adenocarcinoma). c Detail of a pulmonary metastasis corresponding to a clear cell tumor originating from the renal adenocarcinoma.

Other tests included thoracic CT scan, fiberoptic gastroscopy, barium enema, thyroid scan and bone biopsy and failed to identify the primary tumor site. After a progressively downhill course

the patient died 7 weeks after admission. The autopsy showed atrophic end-stage kidneys, with multiple small cysts. There was a renal cell

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Ratcliffe PJ, Dunnill MS, Oliver DO: Clinical importance of acquired cystic disease of the kidney in patients undergoing dialysis. *Br Med J* 1983;287:1855–1858.

Gehrig J, Gottheiner TI, Swenson AS: Acquired cystic disease of the end-stage kidney. *Am J Med* 1985;79:609–620.

Fayemi AO, Ali M: Acquired renal cysts and tumors superimposed on chronic primary kidney diseases. *Pathol Res Pract* 1980;168:73–83.

Baños Gallardo M, Alonso Orcajo N, Forascepi Roza R, et al: Enfermedad quística renal adquirida con carcinoma renal aso-ciado. *Rev Clin Esp* 1986;178:25–27.

Bell ET: *Renal Diseases*. Philadelphia, Lea & Febiger, 1950, p428.

Ishikawa I, Saito Y, Onouchi Z, et al: Development of acquired cystic disease and adenocarcinoma of the kidney in glomerulo-nephritic chronic hemodialysis patients. *Clin Nephrol* 1980;14:1–6.

Gardner KD, Evan AP: Cystic kidneys. An enigma evolves. *Am J Kidney Dis* 1984;3:403–413.

Grantham JJ, Levine E: Acquired cystic disease: Replacing one kidney disease with another. *Kidney Int* 1985;28:99–105.

Gehrig J, Gottheiner TI, Swenson RS: Acquired cystic disease of the end-stage kidney. *Am J Med* 1985;79:609–620.

Mickisch O, Bommer J, Bachmann S, et al: Multicystic transformation of kidneys on chronic renal failrue. *Nephron* 1984;38:93–99.

Bretan PN, Busch MP, Hricak M, et al: Chronic renal failure: a significant risk factor in the development of acquired renal cysts and renal cell carcinoma. Case reports and review of the literature. *Cancer* 1986;57:1871–1879.

carcinoma at the lower pole of the left kidney. The maxi- 2 mal diameter of the tumor was 2 cm. Multiple metastases were demonstrated in bone, liver and lungs (fig. 1). The histologic appearance of these metastases was remarkable because of the presence of clear cells consistent with 4 a diagnosis of primary renal cell adenocarcinoma. No other primary tumor site was identified.

The incidence of ARCD is directly proportional to the time on dialysis. It can be observed in approximately 40% of patients who have been on dialysis for 3 years [7–10] 6 and its incidence progressively increases so that 90% of patients who have been on dialysis for 8 or more years 7 will have ARCD [11].

There is also a correlation between ARCD and thedevelopment of renal tumors [11]. Although the exact 8incidence of renal tumors in ARCD is unknown, it couldbe around 14–20% [8–10, 12]. However, the malignant 9potential of these neoplasms is low and they generallydisplay slow growth and few symptoms. The existence ofmetastases is unusual [1–5]. 11

Our patient has two aspects of interest: first, he presented with metastases as the first clinical symptom and,

12 second, the primary tumor was small, only 2 cm in diameter. This indicates that even small tumors developing on ARCD may have significant malignant potential, and stresses the need for considering this possibility in dialysis patients, particularly if they have been treated for a long period of time.

References

1 Dunnill MS, Millard PR, Oliver D: Acquired cystic disease of the kidneys: a hazard of long-term intermittent maintenance haemodialysis. *J Clin Pathol* 1977;30:868–877.